

# MetaRule

Path Management

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## Part "Original Cigital Coding Rule in XML"

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|                               |   |                 |
|-------------------------------|---|-----------------|
| <b>Attack Category</b>        | <ul style="list-style-type: none"><li>• Malicious Input</li></ul>   |                 |
| <b>Vulnerability Category</b> | <ul style="list-style-type: none"><li>• Buffer Overflow</li></ul>   |                 |
| <b>Software Context</b>       | <ul style="list-style-type: none"><li>• File Path Management</li></ul>  |                 |
| <b>Location</b>               |   |                 |
| <b>Description</b>            | <p>Output buffers for path functions must be sized to hold at least MAX_PATH characters.</p> <p>In general, Windows path functions need to have a buffer of at least MAX_PATH otherwise they are subject to buffer overruns.</p> <p>For some Windows functions, if a Unicode path begins with "\\?" then the path can be longer than MAX_PATH characters, up to 32,000+ characters in length. It is unclear when this applies in a way that would lead to buffer overflows.</p> |                 |
| <b>APIs</b>                   | <b>Function Name</b>  | <b>Comments</b> |
|                               | PathAddBackslashA   |                 |
|                               | PathAddBackslashW   |                 |
|                               | PathAddExtension  |                 |
|                               | PathAddExtensionA   |                 |
|                               | PathAddExtensionW   |                 |
|                               | PathAppend  |                 |
|                               | PathAppendA   |                 |
|                               | PathAppendW   |                 |
|                               | PathCanonicalize  |                 |
|                               | PathCanonicalizeA   |                 |
|                               | PathCanonicalizeW   |                 |
|                               | PathCombine   |                 |
|                               | PathCombineA  |                 |
|                               | PathCombineW  |                 |

1. [http://buildsecurityin.us-cert.gov/bsi/about\\_us/authors/35-BSI.html](http://buildsecurityin.us-cert.gov/bsi/about_us/authors/35-BSI.html) (Barnum, Sean)

|                                   |   |  |                          |
|-----------------------------------|---|--|--------------------------|
| <b>Method of Attack</b>           |   |  |                          |
| <b>Exception Criteria</b>         |   |  |                          |
| <b>Solutions</b>                  | <b>Solution Applicability</b>   | <b>Solution Description</b>                                      | <b>Solution Efficacy</b> |
|                                   | Path functions.   | Ensure that output buffer is sized as MAX_PATH characters.       | Effective                |
| <b>Signature Details</b>          | Any function that returns a path as a result.   |  |                          |
| <b>Examples of Incorrect Code</b> | <pre>WCHAR path[] = L"MyFile.dat"; // Buffer is too small LPWSTR pszPath = path; LPCWSTR dirs[] = { NULL };  if (!PathResolve(pszPath, dirs, PRF_VERIFYEXISTS) { handleError(); }</pre>               |  |                          |
| <b>Examples of Corrected Code</b> | <pre>WCHAR path[MAX_PATH] = L"MyFile.dat"; // Buffer is correctly sized LPWSTR pszPath = path; LPCWSTR dirs[] = { NULL };  if (!PathResolve(pszPath, dirs, PRF_VERIFYEXISTS) { handleError(); }</pre> |  |                          |
| <b>Source Reference</b>           | <ul style="list-style-type: none"> <li><a href="#">Rough Auditing Tool for Security (RATS)</a><sup>2</sup></li> </ul>   |  |                          |
| <b>Recommended Resource</b>       |   |  |                          |
| <b>Discriminant Set</b>           | <b>Operating System</b>   | <ul style="list-style-type: none"> <li>Windows</li> </ul>        |                          |
|                                   | <b>Languages</b>  | <ul style="list-style-type: none"> <li>C</li> <li>C++</li> </ul> |                          |

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